

6/H-16 (vii) Syllabus-2017

2 0 2 5

(May-June)

ECONOMICS

(Honours)

(Statistics)

Marks : 75

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

Answer **one** question from each Unit

UNIT—I

1. (a) What do you mean by central tendency?
Point out the requisites of a good
measure of central tendency. 2+4=6
- (b) The mean wage paid to 500 employees
of a factory was found to be 175. Later
it was discovered that the wages of two
employees were wrongly taken as
280 and 155 instead of 180 and 165.
Find the correct mean. 6
- (c) In a moderately asymmetrical
distribution, the mean and mode are
45.4 and 43.1, respectively. Find the
value of median. 3

D25/1540

(Turn Over)

(2)

2. (a) Calculate mean deviation from median for the following series. Also find its coefficient : $6+2=8$

Marks : 0-10 10-20 20-30 30-40 40-50
No. of students : 5 8 15 16 6

- (b) From the following data, calculate Bowley's coefficient of skewness : 7

Value : 6 12 18 24 30 36 42
Frequency : 4 7 9 18 15 10 7

UNIT-II

3. (a) The following data relate to invested capital and profit earned (in thousands of ₹) by a firm. Calculate the correlation coefficient and interpret the result : $8+2=10$

Capital : 10 20 30 40 50 60 70 80
Profit : 2 4 8 10 12 14 20 28

- (b) Explain the difference between correlation and regression. 5

4. (a) From the following data, obtain the regression equation of X on Y . Estimate the value of X which corresponds to an average of $Y=10$: $7+1=8$

X : 5 8 7 6 4
 Y : 3 4 5 2 1

- (b) Show that the regression coefficient is invariant with the change of origin but not of scale. 7

D25/1540

(Continued)

(3)

UNIT-III

5. (a) What is time series? Discuss the application of time series analysis in economics with suitable examples. $2+4=6$

- (b) Fit a straight line trend by the method of least squares to the following data. Assuming that the same rate of change continues, what would be the predicted earnings for the year 2022? $7+2=9$

Year : 2012 2013 2014 2015 2016 2017 2018 2019
Earnings : 38 40 65 72 69 60 87 95
(in lakhs)

6. Discuss the various methods of curve fitting with suitable examples. 15

UNIT-IV

7. (a) What is index number? Describe the various measures of index number. $2+5=7$

- (b) The following are the prices (in ₹) of commodities in 2012 and 2017. Calculate a price index based on price relatives using the arithmetic mean as well as geometric mean : $4+4=8$

| Year | Commodity | | | | | |
|------|-----------|----|----|----|----|-----|
| | A | B | C | D | E | F |
| 2012 | 45 | 60 | 20 | 50 | 85 | 120 |
| 2017 | 55 | 70 | 30 | 75 | 90 | 130 |

D25/1540

(Turn Over)

(4)

8. From the following data, construct price index numbers using (a) Laspeyres' method, (b) Paasche's method and (c) Fisher's method : $5+5+5=15$

| Commodity | 2010 | | 2020 | |
|-----------|-------|-------------|-------|-------------|
| | Price | Expenditure | Price | Expenditure |
| A | 8 | 120 | 12 | 240 |
| B | 12 | 240 | 14 | 350 |
| C | 10 | 100 | 16 | 128 |
| D | 8 | 200 | 10 | 200 |
| E | 4 | 40 | 6 | 42 |

UNIT—V

9. (a) What is the classical definition of probability? State and prove the multiplication theorem of probability. $2+5=7$
- (b) A bag contains 25 balls numbered from 1 to 25. One ball is drawn at random. Find the probability that the number of the drawn ball will be multiple of (i) 5 or 7 and (ii) 3 or 7. $4+4=8$
10. (a) Show that the mean and variance of Poisson distribution are equal. 9
- (b) Write notes on any two of the following : $3\times 2=6$
- (i) Simple random sampling
 - (ii) Systematic sampling
 - (iii) Sampling error
- ★ ★ ★